United States Army

Program Executive Office

Air and Missile Defense

Huntsville, Alabama

JLENS

- *Single Integrated Air Picture (SIAP)*
- *Integrated Fire Control*
- *Aerial Combat ID (CID) Support*
- *Joint C41 Interoperability*

Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System

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Introduction

The Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS) is a cost-effective, airborne sensor system, providing over-the-horizon land attack cruise missile defense. The JLENS enhances cruise missile detection and provides extended engagement ranges supporting the Air-Directed Surface-to-Air Missile (ADSAM) engagement Concept for air defense weapon systems such as Patriot, Standard Missile, and Advanced Medium Range Air-to-Air Missile (AMRAAM). The Army Acquisition Executive has designated JLENS as an Acquisition Category II program.

Mission

The JLENS Project Office develops, builds, tests, fields, and manages a low-cost, elevated netted sensor system that improves battlefield information superiority and airspace dominance for U.S. and allied warfighters.

System Description

The aerostat used by the JLENS is 71 meters long and is filled with 590,000 cubic feet of non-explosive, non-flammable helium. From its altitude of 15,000 feet above ground level, the JLENS sensor can locate and track targets, providing the battlefield commander with early warning of air and ground threats previously hidden from view. Aerostats differ from blimps in that blimps are powered while aerostats are tethered or anchored to the ground. The tether also supplies electrical power to the aerostat. The internal pressure of JLENS is about the same as the exterior pressure. This makes them extremely difficult to shoot down. These elevated sensors can absorb lots of punctures before they lose altitude. When they do, they come down so slowly that they can be reeled in, repaired easily, and sent right back up.

Elevated Sensor Technology

The JLENS sensor suite consists of a Surveillance Radar (SR) and a Precision Track and Illumination Radar (PTIR). The SR provides a long-range, 360-deg air picture enhanced by Identification Friend or Foe. The PTIR provides precision tracking with accuracy required by interceptor missiles. The PTIR is a steerable, lightweight array, capable of tracking multiple targets in a sector. The JLENS prioritizes remote and local tracks autonomously or accepts external requests for precision tracking and engagement support. The JLENS Mission is to develop advanced elevated sensor technologies to provide battlefield commanders:

- Detection and tracking of low-altitude threats (cruise missile and aircraft)
- Detection and tracking of TBMs, in boost phase
- Detection and tracking of surface moving targets
- Support for ADSAM engagements, including Engage-on-Remote and Forward Pass
- Support for the development and display of the Single Integrated Air Picture (SIAP).

Forward Pass Demonstration

The JLENS Forward Pass (FP) demonstration was sponsored by the Joint Theater Air and Missile Defense Organization (JTAMDO). The highly successful FP demonstration proved that joint interoperability with Army, Marine, and Air Force warfighters to extend the battlefield was technically and operationally feasible. The FP concept uses elevated sensors to guide a surface-launched AMRAAM interceptor missile beyond Line of Sight (LoS) of its own organic radar to the point of target intercept. The FP demonstration showed that dramatic improvements in operational capabilities of existing weapon systems could be achieved. For the first time, control of a missile in flight was handed over to an external radar to intercept a low-flying target. The five missions conducted were all successful, including a direct hit on the target.

For more information, please contact:

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